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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/045,316

11/07/2001

Hiroki Nakamaru

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07/13/2005

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EXAMINER

LISH, PETER J

ART UNIT

PAPER NUMBER

1754

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/045,316

Applicant(s)

NAKAMARU ET AL.

Examiner

Peter J. Lish

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-9,13 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 5-9, 13-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 4/1/05 have been fully considered but they are not persuasive. The applicant argues that Hassan provides sulfur to iron powder by using an external source (i.e. mixing iron powder with iron sulfide powder), whereas the applicants claim that the sulfur is provided to the iron powder internally (i.e. precipitated onto the iron powder).

Firstly, it is seen that even if the teaching of Hassan were restricted to the mixing of iron powder and iron sulfide powder, it would still meet the limitations of the instantly claimed invention. The present claims do not provide a limitation as to where the sulfur comes from, rather the claims require a specific sulfur content of a composition of "iron powder" and that a portion of the surfaces of the iron powder contain sulfur. Should the "iron powder" be interpreted as a mixture of pure iron powder and iron sulfide powder, it is seen to meet the claim limitations.

Secondly, and more importantly, the teaching of Hassan is not restricted as such. Rather, on page 1361, Hassan teaches the precipitation of sulfur on pure iron powder by treating the iron powder with hydrochloric acid. Hassan also teaches the formation of iron sulfide by the addition of sodium hydrogen sulfide to the iron powder. Both of these methods yield the pure iron powder having increased sulfur content on its surface. It is not seen how this differs from the powder of the presently claimed invention.

The applicants also argue that the process of Wolfe teach that the sulfur come from an external source, however, it is noted that Wolfe is used in combination with the teachings of Hassan.

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The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

Claims 1, 3, 5-9, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hassan ("Reduction of halogenated hydrocarbons...").

The rejection of the previous office action is maintained in its entirety and incorporated herein by reference. There is no difference seen between the process of new claim 13 and that of the previously presented claim 2.

Claims 1, 3, 5-9, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolfe et al. (US 6,039,882) in view of Hassan.

The rejection of the previous office action is maintained in its entirety and incorporated herein by reference. There is no difference seen between the process of new claim 13 and that of the previously presented claim 2.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hassan in view of JP 07-278725 or Wolfe et al. in view of Hassan and further in view of JP 07-278725.

Hassan and Wolfe et al. are applied above. Hassan does not teach that the sulfur-containing iron powder be prepared by water atomization, however, JP '725 shows that the composition of various elements in an iron powder may be specified using the water atomization process. JP '725 shows an iron powder that is produced by the water atomization process to have a manganese content of 0.1% and a sulfur content of between 0.08 and 0.30% (a range that

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overlaps with the presently claimed range). Because Hassan teaches that a powder containing a combination of elemental iron and sulfur is useful for the reduction of halogenated hydrocarbons, it would have been obvious to one of ordinary skill at the time of invention to use the iron powder of JP '725 in the process of Hassan. Additionally, it would have been obvious to one of ordinary skill at the time of invention to produce an iron powder having a desired amount of sulfur and manganese using a water atomization process, as taught by JP '725, in order to take advantage of the powder's enhanced properties for the reduction of halogenated hydrocarbons.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hassan in view of Uenosono et al. (US 5,938,814) or Wolfe et al. in view of Hassan and further in view of Uenosono et al. (US 5,938,814).

Hassan and Wolfe et al. are applied above. Hassan does not teach that the sulfur-containing iron powder be prepared by water atomization, however, Uenosono shows that the composition of various elements in an iron powder may be specified using the water atomization process. Uenosono shows an iron powder that is produced by the water atomization of steel to have a manganese content of between 0.05 and 0.40 wt% and a sulfur content of between 0.03 and 0.30 wt% (ranges that overlaps with the presently claimed range). Because Hassan teaches that a powder containing a combination of elemental iron and sulfur is useful for the reduction of halogenated hydrocarbons, it would have been obvious to one of ordinary skill at the time of invention to use the iron powder of Uenosono in the process of Hassan. Additionally, it would have been obvious to one of ordinary skill at the time of invention to produce an iron powder having a desired amount of sulfur and manganese using a water atomization process, as taught by

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Uenosono, in order to take advantage of the powder's enhanced properties for the reduction of halogenated hydrocarbons.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).


Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J. Lish whose telephone number is 571-272-1354. The examiner can normally be reached on 9:00-6:00 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

PL


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